

***Eudendrium bathyalis*, a new species of hydroid
(Hydrozoa: Anthomedusae: Eudendriidae) from Bermuda**

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Abstract.—*Eudendrium bathyalis*, a new species, is described from relatively deep-water (283 m) on the offshore slope of the oceanic island of Bermuda. Its distinctive characters are the small size of the colony, the cnidome, comprising two sizes of microbasic euryteles and the unreduced female blastostyle, bearing eggs supported by long peduncles.

The shallow-water hydroids of Bermuda were recently revised in a series of studies by Calder (1988, 1991, 1997). These reports complemented several earlier studies on the fauna of the region (viz. Allman 1888, Congdon 1907, Ritchie 1909, Bennitt 1922, among others).

Combining records from these studies with collections of hydroids from deeper waters (Calder 1996, 1998), a total of 110 species has been reported from this small oceanic island. The relatively large number of species from a small geographic area likely reflects the extensive sampling undertaken in the area, from the intertidal zone to abyssal bottoms, including bays, grassbeds, caves, reefs, ponds, mangroves, and pelagic seaweeds.

Within the Eudendriidae, four species belonging to the two known genera of the family (*Myrionema amboinense* Pictet, 1893, *Eudendrium bermudense* Calder, 1988, *Eudendrium capillare* Alder, 1856, and *Eudendrium carneum* Clarke, 1882) are known from Bermuda.

These four species appear to be widespread in the warm western Atlantic. Another species recorded from the Caribbean region is *Eudendrium ramosum* (Linnaeus 1758) (Wedler 1975, for Colombia; Wedler

& Larson 1986, for Puerto Rico); this species is also present in the fauna of Bermuda (pers. obs.). Other species of *Eudendrium* have also been described or reported for the region (Allman 1877, Fraser 1944). These species are poorly known taxonomically, being characterized on gross morphology alone; in some cases, hydranths were lacking, and no information exists on their complement of nematocysts.

The purpose of this report is to describe a new species of *Eudendrium*, collected by submersible from bathyal waters on the slope of the Bermuda Pedestal.

Methods

Material was collected by submersible (SDL-1) on 3 Mar 1997, depth 283 m, from the Bermuda Pedestal. The study area is discussed more fully elsewhere (Calder 1998). The holotype was examined, measured, and drawn under microscope and stereomicroscope, both with camera lucida. The cnidome terminology follows Weill (1934) and Mariscal (1974), and measures of nematocysts were made on non-discharged capsules. The L/W ratio (Kubota 1976) and S/C ratio (Watson 1987) are also provided. Other study methods for Euden-

driidae are from Marques (1995) and Marques & Migotto (1998).

Systematics

Genus *Eudendrium* Ehrenberg, 1834

Eudendrium bathyalis, new species

Fig. 1

Examined material.—Holotype, one female colony, Bermuda Pedestal 32°16.6'N 64°44.3'W, 283 m, 3 Mar 1997, on a sponge, ROMIZ B3034.

Description.—Colonies dioecious, fragile, up to 18 mm in height; main stems slightly fascicled basally or up to the half of the colony, sometimes formed only by a couple of tubes, fascicled region up to 0.18 mm in diameter. Hydrocauli arising from stolonal hydrorhiza growing over a sponge; branches few, irregular, occurring over entire hydrocaulus, branches up to third order, in radiate planes; pedicels arising from main stem or branches of first and second order. Perisarc of main stem weakly developed, single tubes 0.08–0.10 mm in diameter, unfascicled region with scarce annulations, in sets of 2–3 rings. Branches with 2–5 rings at origin, 0.06–0.08 mm in diameter. Pedicels obscurely annulated at origin, with 2–4 rings, very delicate, 0.05–0.06 mm in diameter.

Hydranths 0.10–0.25 mm in height, 0.10–0.29 mm in diameter (measured in the body region just below the tentacles), with a distinct deep groove in the aboral region; hypostome large; tentacles 18–24 in number, occurring in a whorl below hypostome.

Gonophores styloids, arising from body of hydranth. Immature styloids placed in a circle around body of hydranth. Female blastostyles styloids without a characteristic spadix over a single egg. Tentacles and hypostome not reduced during ontogeny of female gonophores. Eggs almost circular, maturity undeterminable, encapsulated by a thin gelatinous layer, linked by long peduncles to body of hydranth, distal part of peduncle broadened for egg support. Eggs 3–

5 in number, 0.14–0.15 mm in diameter. Male gonophores not observed.

Nematocysts of one category, heterotrichous microbasic euryteles in two size classes.

Small microbasic euryteles (not seen discharged), 6.0–6.3 by 2.8–3.2 μm , L/W = 1:2.0–2.1, oval, abundant; distributed over hydranth body, hypostome, peduncle coenosarc of female gonophore, and tentacles.

Large microbasic euryteles (seen discharged), 22.1–23.4 by 8.2–8.9 μm , L/W = 1:2.6–2.7, bean-shaped; shaft crossing about from 0.5 to 0.75 of the whole length of undischarged capsule, discharged shaft heavily armed, ca. 19.8 μm in length, proportion S/C = 1.4; nematocysts distributed over hydranth body (sometimes common), egg peduncle (rare), and coenosarc (not seen on hypostome).

Etymology.—*bathyalis*, adj. from Greek *bathys* = deep, in allusion to the bathyal depth from which material of this species was collected.

Remarks.—The distinctive character of this species is the pedunculated gonophore, which we presumed would be a female one. A similar female gonophore has only been observed in *Eudendrium vervoorti* Marques & Migotto, 1998, a recently described species based on scarce material, without hydrorhiza and covered by debris, from the coast of the Netherlands. In *E. vervoorti*, the gonophores apparently arose from the hydranth body, without a conspicuous spadix; some other gonophores (presumably older ones) are linked to the body of hydranth or to the pedicel by long stalks (Marques & Migotto 1998). Another similar feature between both species is the extremely delicate branches (widths barely greater than 0.1 mm), but this character is also shared by several other species of the genus [e.g., *Eudendrium album* Nutting, 1896, *Eudendrium fragile* Motz-Kossowska, 1905, *Eudendrium generale* von Lendenfeld, 1885, *Eudendrium tottoni* Stechow, 1932 (= *Eudendrium antarcticum* Totton, 1930, see Stechow 1932) and *Eu-*

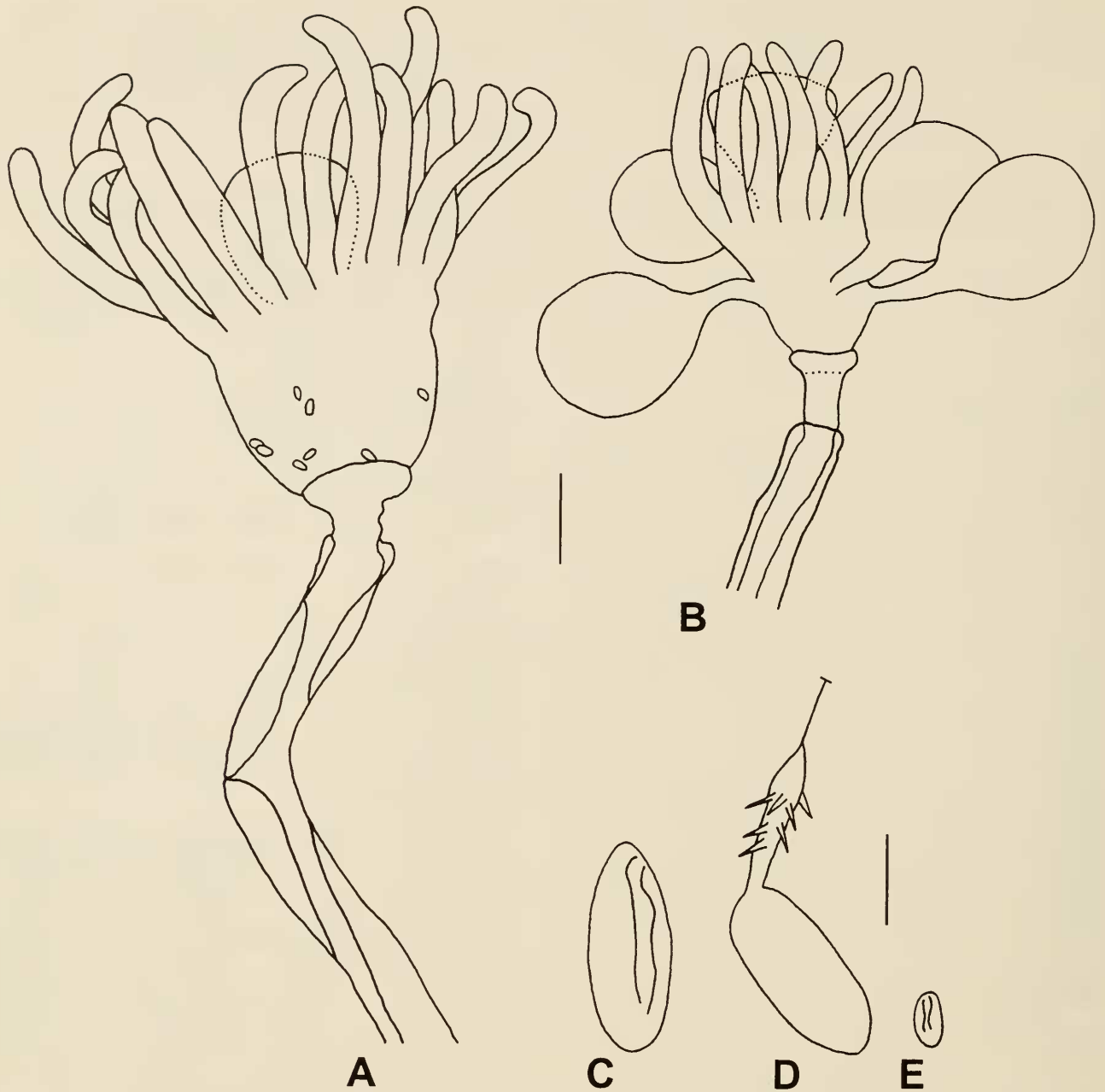


Fig. 1. *Eudendrium bathyialis*, new species; all from holotype ROMIZ B3034. A, hydranth with the distribution of the large microbasic euryteles represented over the body; B, female blastostyle; C, capsule of the large microbasic eurytele; D, discharged large microbasic eurytele; E, capsule of the small microbasic euryteles. Scale bar, A-B = 0.1 mm; C-E = 10 μ m.

dendrium motzkossowskiae Picard, 1951], but none of those has a female gonophore as in *E. vervoorti* and *E. bathyialis*.

The cnidome is the distinctive character between *E. vervoorti* and *E. bathyialis*. The Netherlands species has only small microbasic euryteles and the species from Bermuda has both small and large nematocysts. The material from Bermuda is slightly fascicled, but as the Netherlands material is represented only by a small fragment, even without hydrorhiza (Marques & Migotto

1998), this difference could be only an artifact.

Key to the species of Eudendriidae recorded from Bermuda

- 1a. More than 40 tentacles arranged in two whorls, presence of abundant zooxanthellae *Myrionema amboinense*
- 1b. Usually fewer than 35 tentacles arranged in a unique whorl, zooxanthellae absent 2

- 2a. Nematocysts of only one size class, microbasic eurytele type
 *Eudendrium capillare*
- 2b. Nematocysts in two size classes 3
- 3a. Cnidome including small and large microbasic euryteles 4
- 3b. Cnidome including small microbasic euryteles and large nematocysts different from microbasic euryteles 5
- 4a. Female gonophore encircled by unbranched spadix
 *Eudendrium ramosum*
- 4b. Female gonophore supported by long peduncles, no characteristic spadix
 *Eudendrium bathyalis*, new species
- 5a. Large nematocysts heterotrichous anisorhiza, female immature spadix bifid
 *Eudendrium carneum*
- 5b. Large nematocysts macrobasic euryteles, female immature spadix unbranched
 *Eudendrium bermudense*

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